



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/037,394	10/24/2001	Mark J. Pellerite	56059US009	7743

32692 7590 10/27/2003

3M INNOVATIVE PROPERTIES COMPANY
PO BOX 33427
ST. PAUL, MN 55133-3427

EXAMINER

ZACHARIA, RAMSEY E

ART UNIT PAPER NUMBER

1773

DATE MAILED: 10/27/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/037,394

Applicant(s)

PELLERITE ET AL.

Examiner

Ramsey-Zacharia

Art Unit

-1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14, 15, 23, 24, 26, 27, 29, 30, 32, 33, 35, 36 and 38-49 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

- 5) ☐ Claim(s) _____ is/are allowed.

- 6) ☒ Claim(s) 14, 15, 23, 24, 26, 27, 29, 30, 32, 33, 35, 36 and 38-49 is/are rejected.

- 7) ☐ Claim(s) _____ is/are objected to.

- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 40-44 and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Weber et al. (U.S. Patent 3,222,204).

Weber et al. teach glass beads that may be used in reflective coatings and films (column 1, lines 10-31). The beads are surface treated with a fluorocarbon compound to enable them to float in a binder layer such that they are about half-submerged (column 1, line 70-column 2, line 6). A suitable fluorocarbon compound is one comprising a fluorocarbon monocarboxylic acid having an oleophobic fluorocarbon terminal chain of as short as 4 carbon atoms (column 5, lines 33-39). The glass beads have a refractive index of 1.5 and higher and a diameter of 25-1,000 μm (column 4, line 63-column 5, line 11), i.e. they are optical elements as defined by the instant

Art Unit: 1773

specification on lines 7-9 of page 5. The beads may be used to make reflective sheeting or highway paint (column 5, lines 3-15).

Regarding claim 47, while Weber et al. are silent regarding the concentration of the surface treatment in ppm, there is an explicit teaching that the thickness of the surface treatment should be extremely thin (column 5, lines 47-49). The optimum thickness is just sufficiently thick to impart the ability for the treated bead to float on liquids such as heptane (column 6, lines 35-43). As the instant beads also float on heptane (see page 13, lines 8-12), the thickness of the surface treatment of Weber et al. should be no larger than that of the instant invention.

4. Claims 40-44 and 47 are rejected under 35 U.S.C. 102(e) as being anticipated by Schleifstein (U.S. Patent 6,153,671).

Schleifstein teaches a material comprising a binder and particles having a coating that causes the particles to float in the binder (column 3, lines 7-15). About 55-60 vol% of the particles are embedded in the binder (column 5, lines 46-55). The coating comprises a fluorochemical, such as 1,1,2-trichloro-1,2,2-trifluoroethane telomer B phosphate diethanolamine salt (column 4, lines 20-35). Since 1,1,2-trichloro-1,2,2-trifluoroethane telomer B phosphate diethanolamine salt is not perfluorinated, it is free of perfluoroalkyl groups having more than four carbon atoms. The particles are preferably 175 to 800 μm (column 5, lines 41-45), well within the range of about 25 to about 1000 μm cited in the instant specification for the optical element (see page 5, lines 6-9 of the instant specification). Glass is the preferred material for the particles (column 5, lines 25-40), which should inherently have an index of refraction of 1.5 or higher (see page 5, lines 24-30 of the instant specification). The concentration of coating

Art Unit: 1773

used may be as little as 0.1 g per kg of particles, i.e. 100 ppm (column 5, line 63-column 6, line 2). The material may be used in retroreflective signs or highway marking paint (column 1, lines 5-39).

Claim Rejections - 35 USC § 103

5. Claims 40-45 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morris et al. (U.S. Patent 6,204,971) in view of Weber et al. (U.S. Patent 3,222,204).

Morris et al. teach a rear projector screen comprising glass microspheres having a refractive index of 1.5 to 1.7 (column 2, lines 65-column 3, line 10). In the embodiment of Example 1, the microspheres may have a particle size of between 35 and 150 μm . The microspheres are embedded in an opaque layer (Figure 22 and column 8, lines 35-46). Prior to embedding, the microspheres are treated with a fluorochemical compound as disclosed in U.S. Patent 3,222,204, i.e. Weber et al. (column 10, lines 26-42).

Weber et al. teach glass beads that may be used in reflective coatings and films (column 1, lines 10-31). The beads are surface treated with a fluorocarbon compound to enable them to float in a binder layer such that they are about half-submerged (column 1, line 70-column 2, line 6). A suitable fluorocarbon compound is one comprising a fluorocarbon monocarboxylic acid having an oleophobic fluorocarbon terminal chain of as short as 4 carbon atoms (column 5, lines 33-39). The glass beads have a refractive index of 1.5 and higher and a diameter of 25-1,000 μm (column 4, line 63-column 5, line 11), i.e. they are optical elements as defined by the instant specification on lines 7-9 of page 5. The beads may be used to make reflective sheeting or highway paint (column 5, lines 3-15).

Art Unit: 1773

Weber et al. teach that the disclosed oleophobic fluorocarbon sizing agents are known in the art as equivalent surface treating compounds for the glass beads. Therefore, because all these agents were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to use any of the disclosed agents, including an agent comprising a fluorocarbon monocarboxylic acid having an oleophobic fluorocarbon terminal chain of 4 carbon atoms, as the surface treating material that is then applied to the microspheres of Morris et al.

Regarding claim 47, while Weber et al. are silent regarding the concentration of the surface treatment in ppm, there is an explicit teaching that the thickness of the surface treatment should be extremely thin (column 5, lines 47-49). The optimum thickness is just sufficiently thick to impart the ability for the treated bead to float on liquids such as heptane (column 6, lines 35-43). As the instant beads also float on heptane (see page 13, lines 8-12), the thickness of the surface treatment of Weber et al. should be no larger than that of the instant invention.

Therefore, the inventions of claims 40-45 and 47 would have been obvious to one of ordinary skill in the art at the time the inventions were made.

6. Claims 14, 15, 23, 24, 26, 27, 40-45, and 47-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weber et al. (U.S. Patent 3,222,204) in view of Diesslin et al. (U.S. Patent 2,567,011).

Weber et al. teach glass beads that may be used in reflective coatings and films (column 1, lines 10-31). The beads are surface treated with a fluorocarbon compound to enable them to float in a binder layer such that they are about half-submerged (column 1, line 70-column 2, line

Art Unit: 1773

6). The glass beads have a refractive index of 1.5 and higher and a diameter of 25-1,000 μm (column 4, line 63-column 5, line 11), i.e. they are optical elements as defined by the instant specification on lines 7-9 of page 5. The beads may be used to make reflective sheeting or highway paint (column 5, lines 10-15).

Regarding claim 47, while Weber et al. are silent regarding the concentration of the surface treatment in ppm, there is an explicit teaching that the thickness of the surface treatment should be extremely thin (column 5, lines 47-49). The optimum thickness is just sufficiently thick to impart the ability for the treated bead to float on liquids such as heptane (column 6, lines 35-43). As the instant beads also float on heptane (see page 13, lines 8-12), the thickness of the surface treatment of Weber et al. should be no larger than that of the instant invention.

Weber et al. do not explicitly illustrate a fluorocarbon surface treatment that comprises a compound having a general formula as recited in instant claims 14 and 15. However, Weber et al. do explicitly teach (at column 7, lines 44-64) that the compound may be an oleophobic fluorocarbon sizing agent as taught by U.S. Patent 2,567,011 (i.e. Diesslin et al.).

Diesslin et al. teach a fluorocarbon compound corresponding to the formula R-Z, wherein R is a fluorocarbon radical containing at least 3 carbon atoms and Z is a monocarboxyl radical or derivative thereof, including an amide or N-substituted amide (column 1, lines 13-26). In one embodiment, R is C_3F_7- and Z is $-\text{CONH}_2$ an organic amide group (column 6, lines 5-25).

Weber et al. teach that the disclosed oleophobic fluorocarbon sizing agents are known in the art as equivalent surface treating compounds for the glass beads. Therefore, because these agents were art-recognized equivalents at the time the invention was made, one of ordinary skill

Art Unit: 1773

in the art would have found it obvious to use the fluorocarbon compound of Diesslin et al. as the surface treating material.

Therefore, the inventions of claims 14, 15, 23, 24, 26, 27, 40-45, and 47-49 would have been obvious to one of ordinary skill in the art at the time the inventions were made.

7. Claims 14, 15, 29, 30, 32, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Belisle et al. (U.S. Patent 4,725,494) in view of Weber et al. (U.S. Patent 3,222,204) and Diesslin et al. (U.S. Patent 2,567,011).

Belisle et al. teach a retroreflective sheet comprising transparent microspheres partially embedded in a polymeric layer (column 2, lines 30-39). The microspheres are glass beads and have a preferred diameter of 20-120 μm (column 11, lines 43-54). Because the microspheres are made out of glass and refractive index is a material property, the microspheres should intrinsically have a refractive index of about 1.5 or higher (see page 5, lines 25-28 of the instant specification). The sheet comprises a transparent top coat, a bond layer adhered to the top coat, the microspheres embedded in the bond layer, a spacing layer on the other side of the bond layer, and a reflective layer on the spacing layer (see FIGURE and column 3, lines 51-63). To achieve uniform and hemispherical bead sinkage the microspheres may be treated as disclosed in U.S. Patent 3,222,204 (column 11, lines 55-60).

Belisle et al. do not explicitly illustrate a fluorocarbon surface treatment that comprises a compound having a general formula as recited in instant claims 14 and 15. However, Belisle et al. do explicitly teach that the microspheres may be treated with a fluorocarbon compound according to U.S. Patent 3,222,204 (i.e. Weber et al.).

Art Unit: 1773

Weber et al. teach glass beads that may be used in reflective coatings and films (column 1, lines 10-31). The beads are surface treated with a fluorocarbon compound to enable them to float in a binder layer such that they are about half-submerged (column 1, line 70-column 2, line 6). Weber et al. do not explicitly illustrate a fluorocarbon surface treatment that comprises a compound having a general formula as recited in instant claims 14 and 15. However, Weber et al. do explicitly teach that the compound may be an oleophobic fluorocarbon sizing agent as taught by U.S. Patent 2,567,011 (i.e. Diesslin et al.).

Diesslin et al. teach a fluorocarbon compound corresponding to the formula R-Z, wherein R is a fluorocarbon radical containing at least 3 carbon atoms and Z is a monocarboxyl radical or derivative thereof, including an amide or N-substituted amide (column 1, lines 13-26). In one embodiment, R is C₃F₇- and Z is -CONH₂ an organic amide group (column 6, lines 5-25).

Weber et al. teach that the disclosed oleophobic fluorocarbon sizing agents are known in the art as equivalent surface treating compounds for the glass beads. Therefore, because these agents were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to use the fluorocarbon compound of Diesslin et al. as the surface treating material. Moreover, one of ordinary skill in the art would be motivated to treat the microspheres of Belisle et al. to yield a product with uniform hemispherical sinkage of the microspheres into the bond layer.

Therefore, the inventions of claims 14, 15, 29, 30, 32, and 33 would have been obvious to one of ordinary skill in the art at the time the inventions were made.

Art Unit: 1773

8. Claims 14, 15, 35, 36, 38, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morris et al. (U.S. Patent 6,204,971) in view of Weber et al. (U.S. Patent 3,222,204) and Diesslin et al. (U.S. Patent 2,567,011).

Morris et al. teach a rear projector screen comprising glass microspheres having a refractive index of 1.5 to 1.7 (column 2, lines 65-column 3, line 10). In the embodiment of Example 1, the microspheres may have a particle size of between 35 and 150 μm . The microspheres are embedded in an opaque layer (Figure 22 and column 8, lines 35-46). Prior to embedding, the microspheres are treated with a fluorochemical compound as disclosed in U.S. Patent 3,222,204, i.e. Weber et al. (column 10, lines 26-42). Weber et al. do not explicitly illustrate a fluorocarbon surface treatment that comprises a compound having a general formula as recited in instant claims 14 and 15. However, Weber et al. do explicitly teach that the compound may be an oleophobic fluorocarbon sizing agent as taught by U.S. Patent 2,567,011 (i.e. Diesslin et al.).

Diesslin et al. teach a fluorocarbon compound corresponding to the formula R-Z, wherein R is a fluorocarbon radical containing at least 3 carbon atoms and Z is a monocarboxyl radical or derivative thereof, including an amide or N-substituted amide (column 1, lines 13-26). In one embodiment, R is C_3F_7- and Z is $-\text{CONH}_2$ an organic amide group (column 6, lines 5-25).

Weber et al. teach that the disclosed oleophobic fluorocarbon sizing agents are known in the art as equivalent surface treating compounds for the glass beads. Therefore, because these agents were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to use the fluorocarbon compound of Diesslin et al. as the surface treating material that is then applied to the microspheres of Morris et al.

Art Unit: 1773

Therefore, the inventions of claims 14, 15, 35, 36, 38, and 39 would have been obvious to one of ordinary skill in the art at the time the inventions were made.

Double Patenting

9. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

10. Claims 40-47 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1, 11, 12, and 32-37 of copending Application No. 10/420,168. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Art Unit: 1773

12. Claims 40-44 and 46 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 4 and 18-21 of copending Application No. 09/961,669 in view of Schleifstein (U.S. Patent 6,153,671).

Claim 4 of Application No. 09/961,669 recites an optical element having a surface treatment comprising a fluoropolymer that is substantially free of perfluoroalkyl groups having more than 4 carbon atoms. The fluoropolymer may comprise fluoroether alkyl groups.

Claim 4 of Application No. 09/961,669 does not recite adding a binder to the optical elements.

Schleifstein is directed to retroreflective particles for use in signs and highway markings (column 1, lines 5-41). Conventionally, the particles are added to a binder to enable them to adhere to signs or added directly to paint (another type of binder).

One of ordinary skill in the art would be motivated to add a binder to the optical elements of claim 4 of copending Application No. 09/961,669 to enable their used in common retroreflective applications, such as signs and highway marking.

Regarding claim 41, the degree of embedding of the elements in the binder is a material property of the surface treatment composition applied to the elements. Since the surface treatment of Application No. 09/961,669 reads on that of the instant invention, it is taken to intrinsically exhibit the degree of embedding recited in instant claim 41.

Regarding claim 42, by definition the optical elements of Application No. 09/961,669 have an index of refraction of at least about 1.5 (see paragraph 0028).

This is a provisional obviousness-type double patenting rejection.

Response to Arguments

13. Applicant's arguments with respect to the claims of record have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

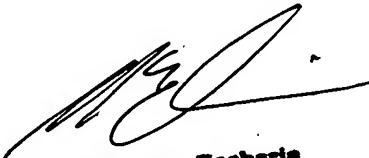
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (703) 305-0503. The examiner can normally be reached on Monday through Friday from 9 to 5.

Art Unit: 1773

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau, can be reached on (703) 308-2367. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Ramsey Zacharia
Primary Examiner
Tech Center 1700